Lyndon Station Permit Fact Sheet

General Information

Permit Number	WI-0060488-11-0
Permittee	Village of Lyndon Station, Village Hall P.O. Box 408, Lyndon Station, WI 53944
Permitted Facility	Lyndon Station Wastewater Treatment Facility, 198 Damon Ln., Lyndon Station, WI
Permit Term	October 01, 2025 to September 30, 2030
Discharge Location	East bank of Lyndon Creek 0.2 mile downstream of the Wright Street bridge SW1/4 SW1/4, Section 3, T14N R05E, Village of Lyndon Station, Juneau County, WI
Receiving Water	Lyndon Creek in the Dell Creek Watershed of the Lower Wisconsin River Basin in Juneau County
Stream Flow ($Q_{7,10}$)	0.76 MGD
Stream Classification	Cold Water, Class III Trout Stream, non-public water supply
Discharge Type	Existing, continuous
Annual Average Design Flow	0.082 MGD
Industrial or Commercial Contributors	N/A
Plant Classification	A1 - Suspended Growth Processes; B - Solids Separation; C - Biological Solids/Sludges; D - Disinfection; SS - Sanitary Sewage Collection System
Approved Pretreatment Program?	N/A

Facility Description

The Lyndon Station Wastewater Treatment Facility (WWTF) treats domestic wastewater from the Village of Lyndon Station. The annual average design flow of the facility is 0.082 million gallons per day (MGD) and the actual annual average in 2024 was 0.0600 MGD. Wastewater treatment at the facility consists of a mechanical screen, a two-channel oxidation ditch, (one operated as an anoxic zone and the other as aerobic), RAS/WAS pumps, a sludge mix pump and a final clarifier. Wastewater is disinfected seasonally via ultraviolet (UV) disinfection prior to discharge to Lyndon Creek. Sludge is aerobically digested and stored onsite prior to being hauled and landspread by a contract hauler on Department approved fields. The facility recently underwent an upgrade that included the following changed: installation of a chemical feed system (ferric chloride) for phosphorus removal, installation of selector basins to implement biological phosphorus removal and to provide flow control, moving the location of the headworks and micro-strainer (auger system), replacing the WWTF's UV system, rehabilitation to the oxidation ditch and clarifier, and installation of an aerobic digester for sludge stabilization. The upgrade also increased the annual average design flow from 0.063 MGD to 0.082 MGD. Significant monitoring and/or limit changes this permit term are as follows: 1) influent flow monitoring added, and 2) effluent flow monitoring frequency changed from continuous to daily for DMR reporting purposes. A schedule has been included that requires the permittee install continuous effluent temperature monitoring equipment. Additionally, to quantitate the risk, PFAS sludge sampling has been included in the permit pursuant to ss. NR214.18(5)(b) and NR 204.06(2)(b)9., Wis. Adm. Code.

Substantial Compliance Determination

Enforcement during last permit term: None

After a desk top review of all discharge monitoring reports, CMARs, land application reports, compliance schedule items, and a site visit on 1/14/2025, this facility has been found to be in substantial compliance with their current permit.

Compliance determination made by Tanner Connors on 02/20/2025.

Sample Point Descriptions

Sample Point Designation		
Sample Point Number	**Discharge Flow, Units, and Averaging Period**	**Sample Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)**
701	Influent flow monitoring was not required prior to this permit term	Representative influent samples shall be collected at the influent sample well in the influent screening enclosure.
003	0.0600 (2024)	Representative effluent composite samples shall be collected in the ultraviolet (UV) channel upstream of the UV disinfectant system. Representative effluent grab samples shall be collected at the "V" notch weir overflow.
002	8 dry US tons	Representative composite sludge samples shall be collected from the sample port semi-annually prior to landspreading and monitored for List 2, and the permittee shall meet the requirements of List 3 & 4 prior to landspreading. Additionally, the permittee shall monitor sludge annually prior to landspreading for List 1 & PFOA/PFAS and once in 2026 for PCBs.

Permit Requirements

1 Influent – Monitoring Requirements

1.1 Sample Point Number: 701- INFLUENT TO PLANT

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total		mg/L	3/Week	24-Hr Flow Prop Comp	
Suspended Solids, Total		mg/L	3/Week	24-Hr Flow Prop Comp	

Changes from Previous Permit:

Influent limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit: influent flow monitoring was added.

Explanation of Limits and Monitoring Requirements

Monitoring of influent flow, BOD5 and total suspended solids is required by s. NR 210.04(2), Wis. Adm. Code, to assess wastewater strengths and volumes and to demonstrate the percent removal requirements in s. NR 210.05, Wis. Adm. Code, and in the Standard Requirements section of the permit.

2 Surface Water - Monitoring and Limitations

2.1 Sample Point Number: 003- EFFLUENT TO LYNDON CREEK

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Flow Rate		MGD	Daily	Continuous	
BOD5, Total	Weekly Avg	45 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April
BOD5, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April
BOD5, Total	Weekly Avg	24 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May - Oct
BOD5, Total	Weekly Avg	13 lbs/day	3/Week	Calculated	Limit applies May - Oct
Suspended Solids,	Weekly Avg	45 mg/L	3/Week	24-Hr Flow	Limit applies Nov - April

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Total				Prop Comp	
Suspended Solids, Total	Monthly Avg	30 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies Nov - April
Suspended Solids, Total	Weekly Avg	24 mg/L	3/Week	24-Hr Flow Prop Comp	Limit applies May - Oct
Suspended Solids, Total	Weekly Avg	13 lbs/day	3/Week	Calculated	Limit applies May - Oct
pH Field	Daily Max	9.0 su	3/Week	Grab	
pH Field	Daily Min	6.0 su	3/Week	Grab	
Nitrogen, Ammonia Variable Limit		mg/L	Weekly	24-Hr Flow Prop Comp	Look up the variable ammonia limit from the 'Variable Daily Max Ammonia Limitation' table below and report the variable limit in the Ammonia Variable Limit column on the eDMR.
Nitrogen, Ammonia (NH3-N) Total	Daily Max - Variable	mg/L	Weekly	24-Hr Flow Prop Comp	Report the daily maximum Ammonia result in the Nitrogen, Ammonia (NH3-N) Total column of the eDMR. See Ammonia Limitation Section below & in the permit.
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	21 mg/L	Weekly	24-Hr Flow Prop Comp	Limit applies Jan - Oct
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	8.7 mg/L	Weekly	24-Hr Flow Prop Comp	Limit applies Jan - April
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	12 mg/L	Weekly	24-Hr Flow Prop Comp	Limit applies May - Oct
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	34 mg/L	Weekly	24-Hr Flow Prop Comp	Limit applies Nov - Dec
Nitrogen, Ammonia (NH3-N) Total	Monthly Avg	15 mg/L	Weekly	24-Hr Flow Prop Comp	Limit applies Nov - Dec
E. coli	Geometric Mean - Monthly	126 #/100 ml	Weekly	Grab	Limit & monitoring apply May - Sept
E. coli	% Exceedance	10 Percent	Monthly	Calculated	Limit & monitoring apply May-Sept. See the E. coli

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Percent Limit section below & in the permit. Enter the result in the DMR on the last day of the month.
Temperature Maximum		deg F	3/Week	Continuous	Monitoring required in 2029. See associated compliance schedule.
Phosphorus, Total	Monthly Avg	3.9 mg/L	Weekly	24-Hr Flow Prop Comp	
Phosphorus, Total	Monthly Avg	0.31 lbs/day	Weekly	Calculated	
Phosphorus, Total		lbs/month	Monthly	Calculated	Calculate the Total Monthly Discharge of phosphorus and report on the last day of the month on the DMR. See phosphorus section(s) in permit.
Phosphorus, Total		lbs/yr	Monthly	Calculated	Calculate the 12-Month Rolling Sum of Total Monthly mass of phosphorus discharged and report on the last day of the month on the DMR. See phosphorus section(s) in the permit.
Nitrogen, Total Kjeldahl		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Monitoring required annually in specific quarters. See Nitrogen Series Monitoring section in the permit.
Nitrogen, Nitrite + Nitrate Total		mg/L	See Listed Qtr(s)	24-Hr Flow Prop Comp	Monitoring required annually in specific quarters. See Nitrogen Series Monitoring section in the permit.
Nitrogen, Total		mg/L	See Listed Qtr(s)	Calculated	Monitoring required annually in specific quarters. See Nitrogen Series Monitoring section in the permit. Total Nitrogen shall be calculated as the sum of reported values for Total Kjeldahl

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Nitrogen and Total Nitrite + Nitrate Nitrogen.

Changes from Previous Permit

Effluent limitations and monitoring requirements were evaluated for this permit term and the only change made from the is that the sample frequency for flow has been changed from "continuous" to "daily" for eDMR reporting purposes.

Explanation of Limits and Monitoring Requirements

Detailed discussions of limits and monitoring requirements can be found in the water quality-based effluent limits (WQBEL) memo dated June 19, 2025 titled "Water Quality-Based Effluent Limitations for the Lyndon Station Wastewater Treatment WPDES Permit No. WI-0060488".

Monitoring Frequencies- The Monitoring Frequencies for Individual Wastewater Permits guidance (April 12, 2021) recommends that standard monitoring frequencies be included in individual wastewater permits based on the size and type of the facility, in order to characterize effluent quality and variability, to detect events of noncompliance, and to ensure consistency in permits issued across the state. Guidance and requirements in administrative code were considered when determining the appropriate monitoring frequencies for pollutants that have final effluent limits in effect during this permit term. After consideration, no changes in monitoring frequency are necessary.

Expression of Limits- In accordance with the federal regulation 40 CFR 122.45(d) and s. NR 205.065, Wis. Adm. Code, limits in this permit are to be expressed as weekly and monthly average whenever practicable.

Ammonia: Water quality-based effluent limitations were evaluated for Ammonia Nitrogen based upon water quality criteria in ch. NR 105 (as revised March 2004), including acute toxicity criteria (ATC) and chronic toxicity criteria (CTC). Effluent limitations for ammonia are calculated using the procedures in s. NR 106.32, Wis. Adm. Code and are shown in the WQBEL memo dated 06/19/2025 referenced above. In addition to weekly and monthly average ammonia limits that vary by month, daily maximum ammonia limits that vary with effluent pH apply year-round. See table below for more information. pH sampling shall occur on the same day total ammonia (NH3-N) sampling occurs.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
$6.0 \leq pH \leq 6.1$	108	$7.0 < pH \leq 7.1$	66	$8.0 < pH \leq 8.1$	14
$6.1 < pH \leq 6.2$	106	$7.1 < pH \leq 7.2$	59	$8.1 < pH \leq 8.2$	11
$6.2 < pH \leq 6.3$	104	$7.2 < pH \leq 7.3$	52	$8.2 < pH \leq 8.3$	9.4
$6.3 < pH \leq 6.4$	101	$7.3 < pH \leq 7.4$	46	$8.3 < pH \leq 8.4$	7.8
$6.4 < pH \leq 6.5$	98	$7.4 < pH \leq 7.5$	40	$8.4 < pH \leq 8.5$	6.4
$6.5 < pH \leq 6.6$	94	$7.5 < pH \leq 7.6$	34	$8.5 < pH \leq 8.6$	5.3
$6.6 < pH \leq 6.7$	89	$7.6 < pH \leq 7.7$	29	$8.6 < pH \leq 8.7$	4.4
$6.7 < pH \leq 6.8$	84	$7.7 < pH \leq 7.8$	24	$8.7 < pH \leq 8.8$	3.7
$6.8 < pH \leq 6.9$	78	$7.8 < pH \leq 7.9$	20	$8.8 < pH \leq 8.9$	3.1
$6.9 < pH \leq 7.0$	72	$7.9 < pH \leq 8.0$	17	$8.9 < pH \leq 9.0$	2.6

Phosphorus: Lyndon Station is included within the Wisconsin River Basin (WRB) total maximum daily load (TMDL), which was approved by EPA April 26, 2019. The TMDL establishes Waste Load Allocations (WLAs) for point source dischargers and determines the maximum amount of phosphorus that can be discharged and still protect water quality. The final effluent limits and monitoring expressed in the permit were derived from Site-Specific Criteria (SSC) for Lakes

Petenwell, Castle Rock, and Wisconsin originally included in Appendix K of the TMDL report and approved by the U.S. Environmental Protection Agency on July 9, 2020.

The permittee's approved SSC-based WLA for this permittee is 70 lbs/yr and results in a calculated monthly average phosphorus mass limit of 0.31 lbs/day. The monthly average phosphorus limit of 3.9 mg/L is an interim limit, set in accordance with s. NR. 217.17, Wis. Adm. Code. The interim limit will remain in effect unless a more stringent limit is required at a future permit issuance by ss. NR 217.13 and NR 217.16(2), Wis. Adm. Code, or the limit is relaxed following procedures outlined in ch. NR 207, Wis. Adm. Code.

The approved TMDL expresses WLAs as lbs/year and lbs/day (maximum annual load divided by 365 days). As outlined in Section 4.6 of the department's *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Program*, mass limits must be given in the permit that are consistent with the TMDL WLA and the phosphorus impracticability agreement that was approved by USEPA in 2012 (see NPDES MOA Addendum dated July 12, 2012 at https://prodoasint.dnr.wi.gov/swims/downloadDocument.do?id=167886175). Continuously discharging facilities covered by the WRB TMDL are given monthly average mass limits. Facilities with WRB TMDL based effluent limits for phosphorus must report the 12-month rolling sum of total monthly discharge (lbs/yr). If reported 12-month rolling sums exceed the facility's max annual WLA, the facility's mass limit may be recalculated using more appropriate CVs or monitoring frequencies when the permit is reissued to bring discharge levels into compliance with the facility's given WLA.

PFOS and PFOA: NR 106 Subchapter VIII – Permit Requirements for PFOS and PFOA Dischargers became effective on August 1, 2022. Pursuant to s. NR 106.98(3)(b), Wis. Adm. Code, the department evaluated the need for PFOS and PFOA monitoring taking into consideration the presence of potential PFOS or PFOA industrial wastes, remediation sites and other potential sources of PFOS or PFOA. Based on information available at the time the permit was drafted, the department has determined the permittee does not need to sample for PFOS or PFOA as part of this permit reissuance. The department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

3 Land Application - Monitoring and Limitations

Municipal Sludge Description						
Sample Point	**Sludge Class (A or B)**	**Sludge Type (Liquid or Cake)**	**Pathogen Reduction Method**	**Vector Attraction Method**	**Reuse Option**	**Amount Reused/Disposed (Dry Tons/Year)**
002	B	Liquid	Fecal Coliform	Incorporation	Land Application	8
Does sludge management demonstrate compliance? Yes						
Is additional sludge storage required? No						
Is Radium-226 present in the water supply at a level greater than 2 pCi/liter? No						
Is a priority pollutant scan required? No Priority pollutant scans are required once every 10 years at facilities with design flows between 5 MGD and 40 MGD, and once every 5 years if design flow is greater than 40 MGD.						

3.1 Sample Point Number: 002- SLUDGE

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
Solids, Total		Percent	Annual	Composite	
Arsenic Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Annual	Composite	
Cadmium Dry Wt	Ceiling	85 mg/kg	Annual	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Annual	Composite	
Copper Dry Wt	Ceiling	4,300 mg/kg	Annual	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Annual	Composite	
Lead Dry Wt	Ceiling	840 mg/kg	Annual	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Annual	Composite	
Mercury Dry Wt	Ceiling	57 mg/kg	Annual	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Annual	Composite	
Molybdenum Dry Wt	Ceiling	75 mg/kg	Annual	Composite	
Nickel Dry Wt	Ceiling	420 mg/kg	Annual	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Annual	Composite	
Selenium Dry Wt	Ceiling	100 mg/kg	Annual	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Annual	Composite	
Zinc Dry Wt	Ceiling	7,500 mg/kg	Annual	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Annual	Composite	
Nitrogen, Total Kjeldahl		Percent	1/ 6 Months	Composite	
Nitrogen, Ammonium (NH4-N) Total		Percent	1/ 6 Months	Composite	
Phosphorus, Total		Percent	1/ 6 Months	Composite	
Phosphorus, Water Extractable		% of Tot P	1/ 6 Months	Composite	
Potassium, Total Recoverable		Percent	1/ 6 Months	Composite	
PCB Total Dry Wt	Ceiling	50 mg/kg	Once	Composite	Once in 2026
PCB Total Dry Wt	High Quality	10 mg/kg	Once	Composite	Once in 2026
PFOA + PFOS		ug/kg	Annual	Calculated	Report the sum of PFOA and PFOS. See PFAS

Monitoring Requirements and Limitations					
Parameter	**Limit Type**	**Limit and Units**	**Sample Frequency**	**Sample Type**	**Notes**
					Permit Sections for more information.
PFAS Dry Wt			Annual	Grab	Perfluoroalkyl and Polyfluoroalkyl Substances based on updated DNR PFAS List. See PFAS Permit Sections for more information.

Changes from Previous Permit:

Sludge limitations and monitoring requirements were evaluated for this permit term and the following changes were made from the previous permit:

PFAS –Monitoring is added annually pursuant to s. NR 204.06(2)(b)9., Wis. Adm. Code.

Explanation of Limits and Monitoring Requirements

Requirements for disposal, including land application of municipal sludge, are determined in accordance with ch. NR 204, Wis. Adm. Code. Ceiling and high-quality limits for metals in sludge are specified in s. NR 204.07(5). Requirements for pathogens are specified in s. NR 204.07(6) and in s. NR 204.07 (7) for vector attraction requirements. Limitations for PCBs are addressed in s. NR 204.07(3)(k). Radium requirements are addressed in s. NR 204.07(3)(n).

The sludge is hauled by a contract hauler, but is spread on Lyndon Station's own fields, permitted under their own WPDES permit. Therefore, the permittee needs to meet pathogen (List 3) and (List 4) vector requirements. Because they haul their sludge twice per year, they monitor it twice per year for List 2. In order to better capture that data in SWAMP, the List 2 monitoring and List 3 & List 4 frequency is semiannual. Additionally, they are required to monitor List 1 and PFAS annually, once for PCBs once during the permit term.

PFAS- The presence and fate of PFAS in municipal and industrial sludges is an emerging public health concern. EPA has developed a draft risk assessment to determine potential risks associated with land applying residuals which contain PFOA and/or PFOS. The DNR is evaluating this information and may alter the current approach based on this review. In the interim, the department has developed the "Interim Strategy for Land Application of Biosolids and Industrial Sludges Containing PFAS."

Collecting sludge data on PFAS concentrations from a wide range of wastewater treatment facilities will help protect public health from exposure to elevated levels of PFAS and determine the department's implementation of EPA's recommendations. To quantitate this risk, PFAS sampling has been included in this WPDES permit pursuant to ss. NR 214.18(5)(b) and NR 204.06(2)(b)9., Wis. Adm. Code.

4 Schedules

4.1 Install Continuous Temperature Monitoring Device at Outfall 003

The permittee shall install a continuous effluent temperature monitoring device at Outfall 003 in accordance with the following schedule:

Required Action	Due Date
Submit Report: Permittee shall submit a report with a timeline & plan for obtaining and installing a continuous effluent flow temperature device at Outfall 003.	12/31/2026
Complete Installation: Permittee shall complete installation of the continuous temperature monitoring device at Outfall 003.	09/30/2028
Begin Monitoring and Reporting Continuous Temperature: Permittee shall begin continuously monitoring temperature at Outfall 003 in order to submit effluent temperature data at a minimum of 3X/week in 2029 per Section 2.2 of this permit.	01/01/2029

Explanation of Schedule: The permittee is required to collect continuous temperature samples in 2029 to assist in determining reasonable potential for the next permit reissuance. Continuous sample collection provides the most accurate daily maximum effluent temperature data. NR 218.04(13) Wis. Adm. Code states that "continuous sample" means a composite of successive individual samples of equal volume taken automatically at equal intervals not exceeding 15 minutes. Where the term is used in connection with monitoring temperature or pH it means continuous in-line recording or monitoring at intervals of not more than 15 minutes. Although the permittee was required by their last permit to collect continuous temperature data for one year of the permit, the permittee indicated they did not have the ability to do so, so they collected grab samples. Therefore, this schedule provides Independence the framework to install continuous temperature monitoring equipment prior to the 2029 permit monitoring requirement.

Attachments

Water Quality Based Effluent Limits: June 19, 2025 titled "Water Quality-Based Effluent Limitations for the Lyndon Station Wastewater Treatment WPDES Permit No. WI-0060488"

Comments

Publishing Newspaper: Juneau County Star Times, PO Box 220, Mauston, WI 53948-0220

Justification Of Any Waivers From Permit Application Requirements

No waivers requested or granted as part of this permit reissuance

Prepared By: Holly Heldstab, Wastewater Specialist **Date:** July 9, 2025

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: June 19, 2025

TO: Holly Heldstab – WCR/Eau Claire

FROM: Benjamin Hartenbower – WCR/Eau Claire

SUBJECT: Water Quality-Based Effluent Limitations for the Lyndon Station Wastewater Treatment Facility
WPDES Permit No. WI-0060488

This is in response to your request for an evaluation of the need for water quality-based effluent limitations (WQBELs) using chapters NR 102, 104, 105, 106, 207, 210, 212, and 217 of the Wisconsin Administrative Code (where applicable) for the discharge from the Lyndon Station Wastewater Treatment Facility in Juneau County. This municipal wastewater treatment facility (WWTF) discharges to Lyndon Creek, located in the Dell Creek Watershed in the Lower Wisconsin River Basin. This discharge is included in theWisconsin River Basin (WRB) Total Maximum Daily Load (TMDL) as approved by EPA on 04/26/2019 with site-specific criteria approved by EPA on 07/09/2020.

The evaluation of the permit recommendations is discussed in more detail in the attached report.

Based on our review, the following recommendations are made on a chemical-specific basis at Outfall 003:

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1,2
BOD_5 May - October November - April			 24 mg/L, 13 lbs/day 45 mg/L	 30 mg/L	1,3
TSS May - October November - April			 24 mg/L, 13 lbs/day 45 mg/L	 30 mg/L	1,3
pH	9.0 s.u.	6.0 s.u.			1
Ammonia Nitrogen January - April May - October November - December	 Variable Variable Variable		 21 mg/L **21 mg/L** 34 mg/L	 8.7 mg/L 12 mg/L 15 mg/L	1,4,5
E. coli				126 #/100 mL geometric mean	6
Temperature					1,7
Phosphorus Interim TMDL Limit				 3.9 mg/L 0.31 lbs/day	1,8
TKN, Nitrate+Nitrite, and Total Nitrogen					1,9

Footnotes:

1. No changes from the current permit.
2. Monitoring only.
3. These limits are based on the Cold Water (CW) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code.

4. The variable daily maximum ammonia nitrogen limit table corresponding to various effluent pH values may be included in the permit. These limits apply year-round.

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

5. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
6. Bacteria limits apply during the disinfection season of May through September. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.
7. Monitoring during the 4th year of the permit term.
8. The phosphorus mass limit is based on the Total Maximum Daily Load (TMDL) for the Wisconsin River Basin to address phosphorus water quality impairments within the TMDL area.
9. As recommended in the Department's October 1, 2019 Guidance for Total Nitrogen Monitoring in Wastewater Permits, annual total nitrogen monitoring is recommended for all minor municipal permittees.Sections 283.37(5) and 283.55(1)(e), Wis. Stats, and ss. NR 200.065(1)(g) and NR 200.065(1)(h), Wis. Adm. Codes, provide the authority to request this monitoring during the permit term. Total Nitrogen is the sum of nitrate (NO_3), nitrite (NO_2), and total Kjeldahl nitrogen (TKN) (all expressed as N).

Please consult the attached report for details regarding the above recommendations. If there are any questions or comments, please contact Benjamin Hartenbower at (715) 225-4705 or benjamin.hartenbower@wisconsin.gov or Diane Figiel at Diane.Figiel@wisconsin.gov.

Attachments (3) – Narrative, Thermal Table, & Map

PREPARED BY: _____ Date: 06/19/2025

Benjamin Hartenbower, PE,
Water Resources Engineer

E-cc: Tanner Connors,Wastewater Engineer – SCR/Fitchburg
Geisa Bittencourt, Regional Wastewater Supervisor – WCR/Eau Claire
Diane Figiel, Water Resources Engineer – WY/3
Nate Willis, Wastewater Engineer – WY/3
Kurt Rasmussen, Water Quality Biologist – WCR/La Crosse

Attachment #1

Water Quality-Based Effluent Limitations for

WPDES Permit No. WI-

Prepared by: Benjamin P. Hartenbower

PART 1 – BACKGROUND INFORMATION

Facility Description

The Lyndon Station Wastewater Treatment Facility treats domestic wastewater from the Village of Lyndon Station. Wastewater treatment at the facility consists of a mechanical screen, a two-channel oxidation ditch, (one operated as an anoxic zone and the other as aerobic), RAS/WAS pumps, a sludge mix pump and a final clarifier. Wastewater is disinfected seasonally via ultraviolet disinfection prior to discharge to Lyndon Creek. Sludge is stored onsite prior to being hauled and land applied by a contract hauler on Department approved fields.

Attachment # is a map of the area showing the approximate location of Outfall 003.

Existing Permit Limitations

The current permit, expiring on 06/30/2025, includes the following effluent limitations and monitoring requirements.

Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Flow Rate					1,2
BOD_5 May - October November - April			 24 mg/L, 13 lbs/day 45 mg/L	 30 mg/L	1,3
TSS May - October November - April			 24 mg/L, 13 lbs/day 45 mg/L	 30 mg/L	1,3
pH	9.0 s.u.	6.0 s.u.			1
Ammonia Nitrogen January - April May - October November - December	 Variable Variable Variable		 21 mg/L **21 mg/L** 34 mg/L	 8.7 mg/L 12 mg/L 15 mg/L	4,5
Fecal Coliform May - September				 400#/100 mL Geometric Mean	6
E. coli May - September				 126#/100 mL Geometric Mean	7
Temperature					2

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Parameter	Daily Maximum	Daily Minimum	Weekly Average	Monthly Average	Footnotes
Phosphorus Interim TMDL Limit				3.9 mg/L 0.31 lbs/day	
TKN, Nitrate+Nitrite, and Total Nitrogen					2

Footnotes:

1. These limitations are not being evaluated as part of this review. Because the water quality criteria (WQC), reference effluent flow rates, and receiving water characteristics have not changed, limitations for these water quality characteristics do not need to be re-evaluated at this time.
2. Monitoring only.
3. These limits are based on the Cold Water (CW) community of the immediate receiving water as described in s. NR 210.05(1), Wis. Adm. Code.
4. Additional limits to comply with the expression of limits requirements in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Codes, are included in bold.
5. The variable daily maximum ammonia nitrogen limit table corresponding to effluent pH values.

Effluent pH s.u.	**Limit mg/L**	**Effluent pH s.u.**	**Limit mg/L**	**Effluent pH s.u.**	**Limit mg/L**
$6.0 \leq pH \leq 6.1$	108	$7.0 < pH \leq 7.1$	66	$8.0 < pH \leq 8.1$	14
$6.1 < pH \leq 6.2$	106	$7.1 < pH \leq 7.2$	59	$8.1 < pH \leq 8.2$	11
$6.2 < pH \leq 6.3$	104	$7.2 < pH \leq 7.3$	52	$8.2 < pH \leq 8.3$	9.4
$6.3 < pH \leq 6.4$	101	$7.3 < pH \leq 7.4$	46	$8.3 < pH \leq 8.4$	7.8
$6.4 < pH \leq 6.5$	98	$7.4 < pH \leq 7.5$	40	$8.4 < pH \leq 8.5$	6.4
$6.5 < pH \leq 6.6$	94	$7.5 < pH \leq 7.6$	34	$8.5 < pH \leq 8.6$	5.3
$6.6 < pH \leq 6.7$	89	$7.6 < pH \leq 7.7$	29	$8.6 < pH \leq 8.7$	4.4
$6.7 < pH \leq 6.8$	84	$7.7 < pH \leq 7.8$	24	$8.7 < pH \leq 8.8$	3.7
$6.8 < pH \leq 6.9$	78	$7.8 < pH \leq 7.9$	20	$8.8 < pH \leq 8.9$	3.1
$6.9 < pH \leq 7.0$	72	$7.9 < pH \leq 8.0$	17	$8.9 < pH \leq 9.0$	2.6

6. A compliance schedule is in the current permit for the *E. coli* limit to replace the Fecal Coliform limit by May 1, 2025.
7. Additional limit: No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 count/100 mL.

Receiving Water Information

- Name: Lyndon Creek
- Waterbody Identification Code (WBIC):
- Classification used in accordance with chs. NR 102 and 104,Wis. Adm. Code: Cold Water (Category 5), Class III trout stream, non-public water supply.
- Low flows used in accordance with chs. NR 106 and 217, Wis. Adm. Code: The following 7-Q_{10} and 7-Q_2 values are from USGS for Station 05003576 at Lyndon Station, in Lyndon Creek .
  7-Q_{10} = 0.76 cubic feet per second (cfs)
  7-Q_2 = 1.0 cfs
  Harmonic Mean Flow = 2.2 cfs using a drainage area of 6.1 mi^2
  The Harmonic Mean has been estimated based on average flow and the 7-Q_{10} using an equation from U.S. EPA's *Technical Support Document for Water Quality-Based Toxics Control* (March 1991, EPA/505/2-90-001, pgs. 88-89).
- Hardness = 65 mg/L as $CaCO_3$. This value represents a sample collected in Lyndon Creek from 10/26/2004 (n = 1).
- % of low flow used to calculate limits in accordance with s. NR 106.06(4)(c)5., Wis. Adm. Code: 25%
- Source of background concentration data: Chloride data are from the Dell Creek Watershed. Metals data from Chaffee Creek at Dakota are used for this evaluation, because there is no data available for Lyndon Creek. Chaffee Creek is within the same ecological landscape so ambient water quality characteristics are expected to be similar.
- Multiple dischargers: None.
- Impaired water status: Lyndon Creek is impaired for Total Phosphorus from mile 0 to 8.73 and is within the Wisconsin River TMDL.

Effluent Information

- Design flow rate:
  Annual average = 0.063 million gallons per day (MGD)
  For reference, the actual average flow from 08/01/2020 to 03/31/2025 was 0.052 MGD.
- Hardness = 101 mg/L as $CaCO_3$ This value represents the geometric mean of data (n = 4) from March 2024 to April 2024 which were reported on the permit application.
- Acute dilution factor used in accordance with s. NR 106.06(3)(c), Wis. Adm. Code: Not applicable – this facility does not have an approved Zone of Initial Dilution (ZID).
- Wastewater source: Domestic wastewater.
- Water supply: Lyndon Station Waterworks.
- Additives: Ferric Chloride.
- Total Phosphorus Wasteload Allocation: 70 lbs/year = 0.19 lbs/day
- Effluent characterization: This facility is categorized as a minor municipality, so the permit application required effluent sample analyses for a limited number of common pollutants, as specified in s. NR 200.065, Table 1, Wis. Adm. Code, primarily metal substances plus Chloride, Hardness, and Ammonia Nitrogen. The permit-required monitoring for Ammonia Nitrogen and Phosphorus from 08/03/2020 to 03/31/2025 is used in this evaluation.
- Effluent data for substances for which a single sample was analyzed is shown in the tables in Part 2, in the column titled “MEAN EFFL. CONC.”. Otherwise, substances with multiple effluent data are shown in the tables below or in their respective parts in this evaluation.

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Effluent Data

Sample Date	Copper (µg/L)	Sample Date	Chloride (mg/L)
03/25/2024	8.84	03/25/2024	104
04/02/2024	5.74	04/03/2024	107
04/08/2024	5.28	04/09/2024	108
04/15/2024	5.00	04/16/2024	100
04/22/2024	5.05		
04/29/2024	4.44		
05/06/2024	3.78		
05/13/2024	3.44		
05/20/2024	3.29		
05/28/2024	4.08		
06/03/2024	4.21		
1-day P_{99}	9.49 µg/L	Mean	105 mg/L
4-day P_{99}	6.90 µg/L		

The following table presents the average concentrations and loadings at Outfall 003 from August 2020 to March 2025 for all parameters with limits in the current permit to meet the requirements of s. NR 201.03(6), Wis. Adm. Code:

Parameters with Effluent Limits

	Average Measurement	Average Mass Discharged
BOD_5*	4.5 mg/L	1.88 lbs/day
TSS*	3.6 mg/L	1.49 lbs/day
pH	6.43 su	
Ammonia Nitrogen*	0.54 mg/L	
*E. coli***	15 #/100 mL	
Fecal Coliform**	25 #/100 mL	
Phosphorus	2.41 mg/L	0.94 lbs/day

*Results below the limit of detection (LOD) were included as zeroes in calculation of average.
** The average measurement for bacteria is calculated as a geometric mean. Values reported below the LOD are replaced with a value of 1 for the calculation of the geometric mean.

PART 2 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR TOXIC SUBSTANCES – EXCEPT AMMONIA NITROGEN

Permit limits for toxic substances are required whenever any of the following occur:

1. The maximum effluent concentration exceeds the calculated limit (s. NR 106.05(3), Wis. Adm. Code)
2. If 11 or more detected results are available in the effluent, the upper 99th percentile (or P_{99}) value exceeds the comparable calculated limit (s. NR 106.05(4), Wis. Adm. Code)
3. If fewer than 11 detected results are available, the mean effluent concentration exceeds 1/5 of the calculated limit (s. NR 106.05(6), Wis. Adm. Code)

Acute Limits based on 1-Q_{10}

Daily maximum effluent limitations for toxic substances are based on the acute toxicity criteria (ATC), listed in ch. NR 105, Wis. Adm. Code. Previously daily maximum limits for toxic substances were calculated as two times the ATC. However, changes to ch. NR 106, Wis. Code, (September 1, 2016) require the Department to calculate acute limitations using the same mass balance equation as used for other limits along with the 1-Q_{10} receiving water low flow to determine if more restrictive effluent limitations are needed to protect the receiving stream from discharges which may cause or contribute to an exceedance of the acute water quality standards. The mass balance equation is provided below.

$$\text{Limitation} = \frac{(WQC)\,(Qs + (1-f)\,Qe) - (Qs - f\,Qe)\,(Cs)}{Qe}$$

Where:

WQC =Acute toxicity criterion or secondary acute value according to ch. NR 105, Wis. Adm. Code.

Qs = average minimum 1-day flow which occurs once in 10 years (1-day Q_{10}) if the 1-day Q_{10} flow data is not available = 80% of the average minimum 7-day flow which occurs once in 10 years (7-day Q_{10}).

Qe = Effluent flow (in units of volume per unit time) as specified in s. NR 106.06(4)(d), Wis. Adm. Code.

f = Fraction of the effluent flow that is withdrawn from the receiving water, and

Cs = Background concentration of the substance (in units of mass per unit volume) as specified in s. NR 106.06(4)(e), Wis. Adm. Code.

If the receiving water is effluent dominated under low stream flow conditions, the 1-Q_{10} method of limit calculation produces the most stringent daily maximum limitations and should be used while making reasonable potential determinations. This is not the case for the Lyndon Station Wastewater Treatment Facility, and the limits are set based on two times the acute toxicity criteria.

The following tables list the calculated WQBELs for this discharge along with the results of effluent sampling. All concentrations are expressed in terms of micrograms per Liter (µg/L), except for hardness and chloride (mg/L).

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)
RECEIVING WATER FLOW = 0.61 cfs, (1-Q_{10} (estimated as 80% of 7-Q_{10})), as specified in s. NR 106.06(3)(bm), Wis. Adm. Code.

SUBSTANCE	REF. HARD. mg/L	ATC	MEAN BACK-GRD.	MAX. EFFL. LIMIT**	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	1-day P_{99}	1-day MAX. CONC.
Arsenic		340		680	136	<0.77		
Cadmium	101	4.43	0.0035	8.86	1.77	<0.084		
Chromium (+3)	101	1825	0.6940	3649	730	4.9		
Copper	101	15.73	0.2510	31.46			9.49	8.84
Lead	101	108.43	0.1451	216.87	43.37	<1.08		
Nickel	101	474.97		949.94	189.99	4.42		
Zinc	101	121.91	0.9660	243.83	48.77	42.1		
Chloride (mg/L)		757	15	1514	303	105		108

* * The 2 × ATC method of limit calculation yields a more restrictive limit than consideration of ambient concentrations and 1-Q_{10} flow rates per the changes to s. NR 106.07(3), Wis. Adm. Code, effective 09/01/2016.

Weekly Average Limits based on Chronic Toxicity Criteria (CTC)
RECEIVING WATER FLOW = 0.19 cfs (¼ of the 7-Q_{10}), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	REF. HARD. mg/L	CTC	MEAN BACK-GRD.	WEEKLY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	4-day P_{99}
Arsenic		148		437	87	<0.77	
Cadmium	65	1.76	0.0035	5.19	1.04	<0.084	
Chromium (+3)	65	1272	0.6940	3750	750	4.9	
Copper	65	7.19	0.2510	20.71			6.90
Lead	65	18.55	0.1451	54.44	10.89	<1.08	
Nickel	65	36.39		107.35	21.47	4.42	
Zinc	65	82.92	0.9660	242.70	48.54	42.1	
Chloride (mg/L)		395	15	1136	227	105	

Monthly Average Limits based on Wildlife Criteria (WC)
The effluent characterization did not include any effluent sampling results for substances for which Wildlife Criteria exist.

Monthly Average Limits based on Threshold Criteria (HTC)
RECEIVING WATER FLOW = 0.54 cfs (¼ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HTC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Cadmium	370.00	0.0035	2421.68	484.34	<0.084	
Chromium (+3)	3818000	0.6940	24989273	4997855	4.9	
Lead	140.0	0.1451	915.5	183.1	<1.08	
Nickel	43000		281440	56288	4.42	

Monthly Average Limits based on Human Cancer Criteria (HCC)
RECEIVING WATER FLOW = 0.54 cfs (¼ of the Harmonic Mean), as specified in s. NR 106.06(4), Wis. Adm. Code.

SUBSTANCE	HCC	MEAN BACK-GRD.	MO'LY AVE. LIMIT	1/5 OF EFFL. LIMIT	MEAN EFFL. CONC.	30-day P_{99}
Arsenic	13.30		87.05	17.41	<0.77	

In addition to evaluating the need for limits for each individual substance for which HCC exist, s. NR 106.06(8), Wis. Adm. Code, requires the evaluation of the cumulative cancer risk. Because no effluent limits are needed based on HCC, determination of the cumulative cancer risk is not needed per s. NR 106.06(8), Wis. Adm. Code.

Conclusions and Recommendations
Based on a comparison of the effluent data and calculated effluent limitations,effluent limits are not required for toxic substances.

Mercury - The permit application did not require monitoring for mercury because the Lyndon Station Wastewater Treatment Facility is categorized as a minor facility as defined in s. NR 200.02(8), Wis. Adm. Code. In accordance with s. NR 106.145(3)(a)3, Wis. Adm. Code, a minor municipal discharger shall monitor, and report results of influent and effluent mercury monitoring once every three months if, "there are two or more exceedances in the last five years of the high-quality sludge mercury concentration of 17 mg/kg specified in s. NR 204.07(5), Wis. Adm. Code." A review of the past five years of sludge characteristics data reveals that all the sample results are within expected analytical ranges and well below the 17 mg/kg level. The average concentration in the sludge from 2021 to 2024 was 0.19 mg/kg, with a maximum reported concentration of 0.27 mg/kg. **Therefore, no monitoring is recommended for Outfall 003.**

PFOS and PFOA - The need for PFOS and PFOA monitoring is evaluated in accordance with s. NR 106.98(2), Wis. Adm. Code.

Monitoring of the water supply produced a PFOA result of 0.49 ng/L. These results are less than one fifth of the respective criteria for each substance. Based on the annual design flow and lack of nondomestic contributions, it is unlikely that the effluent will contain PFOS or PFOA. **Therefore, monitoring is not recommended.**

The Department may re-evaluate the need for sampling at the next permit reissuance if new information becomes available that suggests PFOS or PFOA may be present in the discharge.

PART 3 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR AMMONIA NITROGEN

The State of Wisconsin promulgated revised water quality standards for ammonia nitrogen in ch. NR 105, Wis. Adm. Code, effective March 1, 2004 which includes criteria based on both acute and chronic toxicity to aquatic life. The current permit has variable daily maximum, weekly, and monthly limits. These limits are re-evaluated at this time due to the following changes:

- Subchapter IV of ch. NR 106, Wis. Adm. Code allows limits based on available dilution instead of limits set to twice the acute criteria.
- Section NR 106.07(3), Wis. Adm. Code requires weekly and monthly average limits for municipal treatment plants.
- The maximum expected effluent pH has changed.

Daily Maximum Limits based on Acute Toxicity Criteria (ATC)

Daily maximum limitations are based on acute toxicity criteria in ch. NR 105, Wis. Adm. Code, which are a function of the effluent pH and the receiving water classification. The acute toxicity criterion (ATC) for ammonia is calculated using the following equation:

$$\text{ATC in mg/L} = [A \div (1 + 10^{(7.204 - \text{pH})})] + [B \div (1 + 10^{(\text{pH} - 7.204)})]$$

Where:

A = 0.411 and B = 58.4 for a Cold-Water Category 5 fishery, and
pH (s.u.) = that characteristic of the effluent.

The effluent pH data was examined as part of this evaluation. A total of 731 sample results were reported from 08/03/2020 to 03/31/2025. The maximum reported value was 7.04 s.u. (Standard pH Units). The effluent pH was 6.98 s.u. or less 99% of the time.The 1-day P_{99}, calculated in accordance with s. NR 106.05(5), Wis. Adm. Code, is 7.03 s.u. The mean plus the standard deviation multiplied by a factor of 2.33, an estimate of the upper ninety ninth percentile for a normally distributed dataset, is 7.01 s.u. Therefore, a value of 7.03 s.u. is believed to represent the maximum reasonably expected pH, and therefore most appropriate for determining daily maximum limitations for ammonia nitrogen. Substituting a value of 7.03 s.u. into the equation above yields an ATC = 35.14 mg/L.

Daily Maximum Ammonia Nitrogen Effluent Limitations Calculation Method
In accordance with s. NR 106.32(2), Wis. Adm. Code daily maximum ammonia limitations are calculated using the the 1-Q_{10} receiving water low flow if it is determined that the previous method of acute ammonia limit calculation (2×ATC) is not sufficiently protective of the fish and aquatic life. The more restrictive calculated limits shall apply.

The calculated daily maximum ammonia nitrogen effluent limits using the mass balance approach with the 1-Q_{10} (estimated as 80 % of 7-Q_{10}) and the 2×ATC approach are shown below.

Daily Maximum Ammonia Nitrogen Determination

	Ammonia Nitrogen Limit mg/L
2×ATC	70.27
1-Q_{10}	253.93

The 2xATC method yields the most stringent limits for the Lyndon Station Wastewater Treatment Facility.

The current permit has variable daily maximum effluent limits based on effluent pH. Presented below is a table of daily maximum limitations corresponding to various effluent pH values.

Daily Maximum Ammonia Nitrogen Limits – CW5

Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L	Effluent pH s.u.	Limit mg/L
6.0 ≤ pH ≤ 6.1	108	7.0 < pH ≤ 7.1	66	8.0 < pH ≤ 8.1	14
6.1 < pH ≤ 6.2	106	7.1 < pH ≤ 7.2	59	8.1 < pH ≤ 8.2	11
6.2 < pH ≤ 6.3	104	7.2 < pH ≤ 7.3	52	8.2 < pH ≤ 8.3	9.4
6.3 < pH ≤ 6.4	101	7.3 < pH ≤ 7.4	46	8.3 < pH ≤ 8.4	7.8
6.4 < pH ≤ 6.5	98	7.4 < pH ≤ 7.5	40	8.4 < pH ≤ 8.5	6.4
6.5 < pH ≤ 6.6	94	7.5 < pH ≤ 7.6	34	8.5 < pH ≤ 8.6	5.3
6.6 < pH ≤ 6.7	89	7.6 < pH ≤ 7.7	29	8.6 < pH ≤ 8.7	4.4
6.7 < pH ≤ 6.8	84	7.7 < pH ≤ 7.8	24	8.7 < pH ≤ 8.8	3.7
6.8 < pH ≤ 6.9	78	7.8 < pH ≤ 7.9	20	8.8 < pH ≤ 8.9	3.1
6.9 < pH ≤ 7.0	72	7.9 < pH ≤ 8.0	17	8.9 < pH ≤ 9.0	2.6

Weekly and Monthly Average Limits based on Chronic Toxicity Criteria (CTC)
The ammonia limit calculation also warrants evaluation of weekly and monthly average limits based on chronic toxicity criteria for ammonia, because those limits relate to the assimilative capacity of the receiving water.

Weekly average and monthly average limits for ammonia nitrogen are based on chronic toxicity criteria in ch. NR 105, Wis. Adm. Code.

The 30-day chronic toxicity criterion (CTC) for ammonia in waters classified as Cold-Water Community is calculated by the following equation, according to subchapter IV of NR 106, Wis. Adm. Code.

$$CTC = E \times \{[0.0676 \div (1 + 10^{(7.688 - pH)})] + [2.912 \div (1 + 10^{(pH - 7.688)})]\} \times C$$

Where:

pH = the pH (s.u.) of the receiving water,
E = 0.854,
C = the minimum of 2.85 or $1.45 \times 10^{(0.028 \times (25 - T))}$,
T = the temperature of the receiving (ºC)

The 4-day criterion is equal to the 30-day criterion multiplied by 2.5. The 4-day criteria are used in a mass-balance equation with the 7-Q_{10} (4-Q_3, if available) to derive weekly average limitations. And the 30-day criteria are used with the 30-Q_5 (estimated as 85% of the 7-Q_2 if the 30-Q_5 is not available) to derive monthly average limitations. The stream flow value is further adjusted to temperature; 100% of the flow is used if the Temperature ≥ 16 ºC, 25% of the flow is used if the Temperature < 11 ºC, and 50% of the flow is used if the Temperature ≥ 11 ºC but < 16 ºC.

The "default" basin assumed values are used for Temperature, because minimum ambient data is available. Values for pH are from the Dell Creek Watershed and ammonia concentrations are from the Lower Wisconsin River Basin. These values are shown in the table below, with the resulting criteria and effluent limitations.

Weekly and Monthly Ammonia Nitrogen Limits – CW5

		January - April	May - October	November - December
Effluent Flow	Qe (MGD)	0.063	0.063	0.063
Background Information	7-Q_{10} (cfs)	0.76	0.76	0.76
	7-Q_2 (cfs)	1.0	1.0	1.0
	Ammonia (mg/L)	0.14	0.17	0.03
	Average Temperature (°C)	4.0	14.7	3.9
	Maximum Temperature (°C)	8.3	17.8	5.0
	pH (s.u.)	7.74	7.92	7.94
	% of Flow used	25	50	25
	Reference Weekly Flow (cfs)	0.19	0.38	0.19
	Reference Monthly Flow (cfs)	0.21	0.43	0.21

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		January - April	May - October	November - December
Criteria	4-day Chronic	8.52	5.55	6.67
mg/L	30-day Chronic	3.41	2.22	2.67
Effluent Limits	Weekly Average	25	27	20
mg/L	Monthly Average	10.5	11.2	

Effluent Data

Samples for ammonia nitrogen were taken from August 2020 to March 2025, and their results were as follows:

Ammonia Nitrogen Effluent Data

Ammonia Nitrogen mg/L	January - April	May - October	November - December
1-day P_{99}	8.00	3.08	1.55
4-day P_{99}	4.37	1.96	0.90
30-day P_{99}	2.07	0.82	0.37
Mean*	1.13	0.26	0.14
Std	1.79	0.98	0.46
Sample size	86	119	43
Range	<0.07 - 7.19	<0.06 - 6.56	<0.06 - 2.27

*Values lower than the limit of detection were substituted with a zero.

Reasonable Potential

The need to include ammonia limits in the Lyndon Station Wastewater Treatment Facility permit is determined by calculating 99th upper percentile (or P_{99}) values for ammonia and comparing those to the calculated limits. Based on this comparison, there is no reasonable potential for the discharge to exceed any of the calculated ammonia nitrogen limits.

The permit currently has variable daily maximum, weekly, and monthly limits. Where there are existing ammonia nitrogen limits in the permit, the limits must be retained regardless of reasonable potential, consistent with s. NR 106.33(1)(b), Wis. Adm. Code:

> (b) If a permittee is subject to an ammonia limitation in an existing permit, the limitation shall be included in any reissued permit. Ammonia limitations shall be included in the permit if the permitted facility will be providing treatment for ammonia discharges.

Conclusions and Recommendations
In summary, the current **ammonia nitrogen limitations and monitoring are recommended to continue** in the reissued permit.

	Daily Maximum mg/L	Weekly Average mg/L	Monthly Average mg/L
January - April	Variable	21	8.7
May - October	Variable	**21**	12
November - December	Variable	34	15

Values to meet the expression of limits requirements in s. NR 106.07(4), Wis. Adm Code, are denoted in bold text.

PART 4 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR BACTERIA

On May 1, 2020, revisions to chs. NR 102 and NR 210, Wis. Adm. Codes, became effective which replace fecal coliform limits with new *Escherichia coli* (*E. coli*) limits for protection of recreational uses. Section NR 210.06(2)(a)1, Wis. Adm. Code, includes two limits which must be included in permits for facilities which are required to disinfect:

1. The geometric mean of *E. coli* bacteria in effluent samples collected in any calendar month may not exceed 126 counts/100 mL.
2. No more than 10 percent of *E. coli* bacteria samples collected in any calendar month may exceed 410 counts/100 mL.

These limits are required May through September. No changes are recommended to the current recreational period and the required disinfection season.

Effluent Data
The Lyndon Station Wastewater Treatment Facility has monitored effluent *E. coli* from 08/03/2020 to 09/24/2024 and a total of 105 results are available. A geometric mean of 126 counts/100 mL was exceeded in 2 of the last 22 months, with a maximum monthly geometric mean of 272 counts/100 mL. Effluent data has exceeded 410 counts/100 mL 6 times (which is 6% of the total sample results). The maximum reported value was 4185 counts/100 mL.

PART 5 – PHOSPHORUS

Technology-Based Effluent Limit
Subchapter II of Chapter NR 217, Wis. Adm. Code, requires municipal wastewater treatment facilities that discharge greater than 150 pounds of total phosphorus per month to comply with a monthly average limit of 1.0 mg/L, or an approved alternative concentration limit.

Because the Lyndon Station Wastewater Treatment Facility does not currently have an existing technology-based limit, the need for this limit in the reissued permit is evaluated. The data demonstrates that the annual monthly average phosphorus loading is less than 150 lbs/month, which is the threshold for municipalities in accordance to s. NR 217.04(1)(a)1, Wis. Adm. Code, and therefore no technology-based limit is required.

Annual Average Mass Total Phosphorus Loading

Month	Average Phosphorus Concentration (mg/L)	Total Effluent Flow (Million Gallons)	Calculated Mass (lbs/month)
April 2024	0.500	1.240	5.17
May 2024	0.449	1.812	6.78
June 2024	0.393	2.425	7.94
July 2024	0.416	3.761	13.05
August 2024	0.351	2.782	8.13
September 2024	0.333	1.974	5.48
October 2024	0.267	1.946	4.33
November 2024	0.334	1.452	4.05
December 2024	0.310	1.467	3.79
January 2025	0.523	1.360	5.94
February 2025	0.536	1.202	5.37
March 2025	0.536	1.474	6.59
Average	0.412	1.908	**6.39**

Total P (lbs/month) = Monthly average (mg/L) × total flow (MG/month) × 8.34 (lbs/gallon)
Where total flow is the sum of the actual flow (MGD) for that month

In addition, the need for a WQBEL for phosphorus must be considered.

TMDL Limits – Phosphorus

Total phosphorus (TP) effluent limits in lbs/day are calculated as recommended in the *TMDL Development and Implementation Guidance: Integrating the WPDES and Impaired Waters Programs* (May 2020). The wasteload allocations (WLA) that implement site-specific criteria for Lakes Petenwell, Castle Rock, and Wisconsin are found in Appendix K of the *Total Maximum Daily Loads for Total Phosphorus in the Wisconsin River Basin (WRB TMDL)* report dated April 26, 2019 and are expressed as maximum annual loads (lbs/year) and maximum daily loads (lbs/day). The WLA that implement statewide criteria found in Appendix J of the TMDL report are no longer applicable following approval of these site-specific criteria. The daily WLAs in the WRB TMDL equals the annual WLA divided by the number of days in the year.

For the reasons explained in the April 30, 2012 paper entitled *Justification for Use of Monthly, Growing Season and Annual Average Periods for Expression of WPDES Permit Limits for Phosphorus Discharges in Wisconsin*, WDNR has determined that the phosphorus WQBELs set equal to WLAs would not be consistent with the assumptions and requirements of the TMDL.

Therefore, limits given to continuously discharging facilities covered by the WRB TMDL are given monthly average mass limits. If the equivalent effluent concentration is less than or equal to 0.3 mg/L, six-month average mass limits are also included. The following equation shows the calculation of equivalent effluent concentration:

TP Equivalent Effluent Concentration = Daily WLA ÷ (Flow Rate * Conversion Factor)
= 0.192 lbs/day ÷ (0.063 MGD * 8.34)
= 0.36 mg/L

Since this value is greater than 0.3 mg/L, the WLA should be expressed as a monthly average mass limit for total phosphorus and no six-month average limit is required.

TP Monthly Average Permit Limit = Daily WLA * Monthly average multiplier
= 0.192 lbs/day * 1.59
= 0.31 lbs/day

The multiplier used in the monthly average calculation was determined according to TMDL implementation guidance. A coefficient of variation was calculated, based on phosphorus mass monitoring data, to be 0.77. This is greater than the CV used for the previous evaluation, so the previously calculated CV of 0.44 is used.

The WRB TMDL establishes TP wasteload allocations to reduce the loading in the entire watershed including WLAs to meet water quality standards for tributaries to the Wisconsin River. Therefore, WLA-based WQBELs are protective of immediate receiving waters and TP WQBELs derived according to s. NR 217.13, Wis. Adm. Code are not required.

Since wasteload allocations are expressed as annual loads (lbs/yr), permits with TMDL-derived monthly average permit limits should require the permittee to calculate and report rolling 12-month sums of total monthly loads for TP. Rolling 12-month sums can be compared directly to the annual wasteload allocation. Six-month average limits apply in the periods May – October and November – April.

Effluent Data
The following table lists the statistics for effluent phosphorus levels from August 2020 to March 2025 for informational purposes. In the cases where reporting the mass discharge is not required in the current permit, the mass is calculated using the reported phosphorus concentration and the effluent flow rate for that day.

Total Phosphorus Effluent Data

	Phosphorus mg/L	Mass Discharge (lbs/day)
1-day P_{99}	7.652	3.715
4-day P_{99}	4.630	2.127
30-day P_{99}	3.107	1.319
Mean	2.411	0.964
Std	1.478	0.738
Sample size	243	243
Range	0.199 - 6.66	0.100 - 4.408

Conclusions:
• Monthly average Total Phosphorus concentration limit of 3.9 mg/L
• Monthly average Total Phosphorus mass limit of 0.31 lbs/day

PART 6 – WATER QUALITY-BASED EFFLUENT LIMITATIONS FOR THERMAL

Surface water quality standards for temperature took effect on October 1, 2010. These regulations are detailed in chs. NR 102 (Subchapter II – Water Quality Standards for Temperature) and NR 106 (Subchapter V – Effluent Limitations for Temperature) of the Wisconsin Administrative Code. Daily maximum and weekly average temperature criteria are available for the 12 different months of the year depending on the receiving water classification.

In accordance with s. NR 106.53(2)(b), Wis. Adm. Code, the highest daily maximum flow rate for a calendar month is used to determine the acute (daily maximum) effluent limitation. In accordance with s. NR 106.53(2)(c), Wis. Adm. Code, the highest 7-day rolling average flow rate for a calendar month is used to determine the sub-lethal (weekly average) effluent limitation. These values were based off actual flow reported from August 2020 to March 2025.

The table below summarizes the maximum temperatures reported during monitoring from January to December 2023.

Monthly Temperature Effluent Data & Limits

Month	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Weekly Maximum (°F)	Daily Maximum (°F)	Weekly Average Effluent Limitation (°F)	Daily Maximum Effluent Limitation (°F)
JAN	47	49	65	120
FEB	43	44	62	119
MAR	43	43	62	118
APR	47	48	68	100
MAY	52	54	72	87
JUN	58	60	72	84
JUL	64	64	72	80
AUG	66	67	68	83
SEP	67	67	**66**	92
OCT	64	64	**61**	75
NOV	55	55	62	104
DEC	50	50	63	119

Reasonable Potential

Permit limits for temperature are recommended based on the procedures in s. NR 106.56, Wis. Adm. Code.

- An acute limit for temperature is recommended for each month in which the representative daily maximum effluent temperature for that month exceeds the acute WQBEL. The representative daily maximum effluent temperature is the greater of the following:
  (a) The highest recorded representative daily maximum effluent temperature
  (b) The projected 99th percentile of all representative daily maximum effluent temperatures.
- A sub−lethal limitation for temperature is recommended for each month in which the representative weekly average effluent temperature for that month exceeds the weekly average WQBEL. The representative weekly average effluent temperature is the greater of the following:
  (a) The highest weekly average effluent temperature for the month.
  (b) The projected 99th percentile of all representative weekly average effluent temperatures for the month.

Comparing the representative highest effluent temperature to the calculated effluent limits determines the reasonable potential of exceeding the effluent limits. The months in which limitations are recommended are shown in bold. Based on this analysis, weekly average temperature maximum limits are necessary for September and October. The complete thermal table used for the limit calculation is attached.

Dissipative Cooling Re-Evaluation
The Village of Lyndon Station has requested continued consideration of dissipative cooling. Dissipative cooling was previously approved May 2020. The request states that there have been no substantial changes in the operation of, or thermal loadings to, the treatment facility since the previouse dissipative cooling determination. The department has reviewed that request and associated data and believes that the effluent does not have a reasonable potential to cause or contribute to an exceedance of the sub-lethal criterion outside of a small area of mixing and cooling. Therefore, a temperature limit is not recommended at this time. **Effluent monitoring is recommended for the 4th year of the permit term.**

Future WPDES Permit Reissuance
Dissipative cooling requests must be re-evaluated every permit reissuance. The permittee is responsible to submit an updated DC request prior to permit reissuance. Such a request must either include:
a) A statement by the permittee that there have been no substantial changes in operation of, or thermal loadings to, the treatment facility and the receiving water; or
b) New information demonstrating DC to supplement the information used in the previous DC determination. If significant changes in operation or thermal loads have occurred, additional DC data must be submitted to the Department.

PART 7 – WHOLE EFFLUENT TOXICITY (WET)

WET testing is used to measure, predict, and control the discharge of toxic materials that may be harmful to aquatic life. In WET tests, organisms are exposed to a series of effluent concentrations for a given time and effects are recorded. Decisions below related to the selection of representative data and the need for WET limits were made according to ss. NR 106.08 and 106.09, Wis. Adm. Code. WET monitoring frequency and toxicity reduction evaluation (TRE) recommendations were made using the best professional judgment of staff familiar with the discharge after consideration of the guidance in the *Whole Effluent Toxicity (WET) Program Guidance Document* (2022).

- Acute tests predict the concentration that causes lethality of aquatic organisms during a 48 to 96-hour exposure. To assure that a discharge is not acutely toxic to organisms in the receiving water, WET tests must produce a statistically valid LC_{50} (Lethal Concentration to 50% of the test organisms) greater than 100% effluent, according to s. NR 106.09(2)(b), Wis. Adm Code.

- Chronic tests predict the concentration that interferes with the growth or reproduction of test organisms during a seven-day exposure. To assure that a discharge is not chronically toxic to organisms in the receiving water, WET tests must produce a statistically valid IC_{25} (Inhibition Concentration) greater than the instream waste concentration (IWC), according to s. NR 106.09(3)(b), Wis. Adm Code. The IWC is an estimate of the proportion of effluent to total volume of water (receiving water + effluent). The **IWC of 34%**, shown in the WET Checklist summary below, was calculated according to the follow equation, as specified in s. NR 106.03(6), Wis. Adm. Code:

$$IWC\ (as\ \%) = Q_e \div \{(1 - f)\ Q_e + Q_s\} \times 100$$

Where:

Qe = annual average flow = 0.063 MGD
f = fraction of the Qe withdrawn from the receiving water = 0
Qs = ¼ of the 7-Q_{10} = 0.76 cfs ÷ 4 = 0.19 cfs

- According to the *State of Wisconsin Aquatic Life Toxicity Testing Methods Manual* (s. NR 219.04, Table A, Wis. Adm. Code), a synthetic (standard) laboratory water may be used as the dilution water and primary control in acute WET tests, unless the use of different dilution water is approved by the Department prior to use. The primary control water must be specified in the WPDES permit. The receiving water must be used as the dilution water and primary control in chronic WET tests, unless the use of different dilution water is approved by the Department prior to use. The dilution water used in WET tests conducted on Outfall 003 shall be a grab sample collected from the receiving water location, upstream and out of the influence of the mixing zone and any other known discharge. The specific receiving water location must be specified in the WPDES permit.

- Shown below is a tabulation of all available WET data for Outfall 003. Efforts are made to ensure that decisions about WET monitoring and limits are made based on representative data, as specified in s. NR 106.08(3), Wis. Adm Code. Data which is not believed to be representative of the discharge was not included in reasonable potential calculations. The table below differentiates between tests used and not used when making WET determinations.

WET Data History

Date Test Initiated	Acute Results LC50 %				Chronic Results IC25 %					Footnotes or Comments
	C. dubia	Fathead minnow	Pass or Fail?	Used in RP?	*C. dubia*	Fathead Minnow	Algae (IC50)	Pass or Fail?	Use in RP?	
08/09/2006	>100	>100	Pass	Yes						

- According to s. NR 106.08, Wis. Adm. Code, WET reasonable potential is determined by multiplying the highest toxicity value that has been measured in the effluent by a safety factor, to predict the likelihood (95% probability) of toxicity occurring in the effluent above the applicable WET limit. The safety factor used in the equation changes based on the number of toxicity detects in the dataset. The fewer detects present, the higher the safety factor, because there is more uncertainty surrounding the predicted value. **WET limits must be given, according to s. NR 106.08(6), Wis. Adm. Code, whenever the applicable Reasonable Potential equation results in a value greater than 1.0.**

  Acute Reasonable Potential = [(TUa effluent) (B)]
  Chronic Reasonable Potential = [(TUc effluent) (B)(IWC)]

  According to s. NR 106.08(6)(d), Wis. Adm. Code, TUa and TUc effluent values are equal to zero whenever toxicity is not detected (i.e. when the LC_{50}, IC_{25} or $IC_{50} \geq 100\%$).

  Acute Reasonable Potential = 0 < 1.0, reasonable potential is not shown, and a limit is not required.

Attachment #1

The WET checklist was developed to help DNR staff make recommendations regarding WET limits, monitoring, and other related permit conditions. The checklist indicates whether acute and chronic WET limits are needed, based on requirements specified in s. NR 106.08, Wis. Adm. Code. The checklist steps the user through a series of questions, assesses points based on the potential for effluent toxicity, and suggests monitoring frequencies based on points accumulated during the checklist analysis. As toxicity potential increases, more points accumulate, and more monitoring is recommended to ensure that toxicity is not occurring. A summary of the WET checklist analysis completed for this permittee is shown in the table below. Staff recommendations based on best professional judgment are provided below the summary table. For guidance related to reasonable potential and the WET checklist, see Chapter 1.3 of the WET Guidance Document: https://dnr.wisconsin.gov/topic/Wastewater/WET.html.

WET Checklist Summary

	Acute	Chronic
AMZ/IWC	Not Applicable. **0 Points**	IWC = 34% **0 Points**
Historical Data	One test used to calculate RP. No tests failed. **0 Points**	No data available. **5 Points**
Effluent Variability	Phosphorus, pH, and *E. coli* exceedances. Little variability, no upsets, consistent WWTF operations. **5 Points**	Same as Acute. **5 Points**
Receiving Water Classification	Cold Water (5 pts) **5 Points**	Same as Acute. **5 Points**
Chemical-Specific Data	No reasonable potential for limits based on ATC. Ammonia nitrogen limit carried over from the current permit. Ammonia, Chromium, Copper, Nickel, Zinc and Chloride detected. (3 pts) Additional Compounds of Concern: None **3 Points**	No reasonable potential for limits based on CTC. Ammonia nitrogen limit carried over from the current permit. Ammonia, Chromium, Copper, Nickel, Zinc and Chloride detected. (3 pts) Additional Compounds of Concern: None **3 Points**
Additives	One Water Quality Conditioner (1 pt) Permittee has proper P chemical SOPs in place. **1 Point**	Additive used more than once per 4 days. **1 Point**
Discharge Category	No Industrial Contributors. **0 Points**	Same as Acute. **0 Points**
Wastewater Treatment	Secondary or Better **0 Points**	Same as Acute. **0 Points**
Downstream Impacts	No impacts known. **0 Points**	Same as Acute. **0 Points**

	Acute	Chronic
Total Checklist Points:	**14 Points**	**19 Points**
Recommended Monitoring Frequency (from Checklist):	No acute monitoring recommended.	No chronic monitoring recommended.
Limit Required?	No	No
TRE Recommended? (from Checklist)	No	No

- No WET testing is required because information related to the discharge indicates the potential for effluent toxicity is believed to be low.

PART 8 – EXPRESSION OF LIMITS

Revisions to chs. NR 106 and 205, Wis. Adm. Code, align Wisconsin's WQBELs with 40 CFR 122.45(d), which requires WPDES permits contain the following concentration limits, whenever practicable and necessary to protect water quality:

- Weekly average and monthly average limitations for continuous discharges subject to ch. NR 210.
- Daily maximum and monthly average limitations for all other discharges.

The Lyndon Station Wastewater Treatment Facility is a municipal treatment facility is therefore subject to weekly average and monthly average limitations whenever limitations are determined to be necessary.

This evaluation provides additional limitations necessary to comply with the expression of limits in ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code. Pollutants already compliant with these rules or that have an approved impracticability demonstration, are excluded from this evaluation including water-quality based effluent limitations for phosphorus, temperature, pH, and *E. coli* among other parameters. Mass limitations are not subject to the limit expression requirements if concentrations limits are given.

Method for Calculation

The methods for calculating limitations for continuous discharges subject to ch. NR 210 to conform to 40 CFR 122.45(d) are specified in s. NR 106.07(3), Wis. Adm. Code, and are as follows:

1. Whenever a daily maximum limitation is determined necessary to protect water quality, a weekly and monthly average limitation shall also be included in the permit and set equal to the daily maximum limit unless a more restrictive limit is already determined necessary to protect water quality.
2. Whenever a weekly average limitation is determined necessary to protect water quality, a monthly average limitation shall also be included in the permit and set equal to the weekly average limit unless a more restrictive limit is already determined necessary to protect water quality.

3. Whenever a monthly average limitation is determined necessary to protect water quality, a weekly average limit shall be calculated using the following procedure and included in the permit unless a more restrictive limit is already determined necessary to protect water quality:

   Weekly Average Limitation = (Monthly Average Limitation × MF)

   Where:

   MF= Multiplication factor as defined in Table 1

   CV= coefficient of variation (CV) as calculated in s. NR 106.07(5m), Wis. Adm. Code.

   n= the number of samples per month required in the permit

s. NR 106.07(3)€4, Table 1, Wis. Adm. Code — Multiplication Factor (for CV = 0.6)

CV	n=1	n=2	n=3	n=4	n=8	n=12	n=16	n=20	n=24	n=30
0.6	1.00	1.31	1.51	1.64	1.95	2.12	2.23	2.30	2.36	2.43

Note: This methodology is based on the *Technical Support Document for Water Quality-based Toxics Control* (March 1991). PB91-127415.

Summary of Additional Limitations:

In conclusion, the following additional limitations are required to comply with ss. NR 106.07 and NR 205.065(7), Wis. Adm. Code.

Expression of Limits Summary

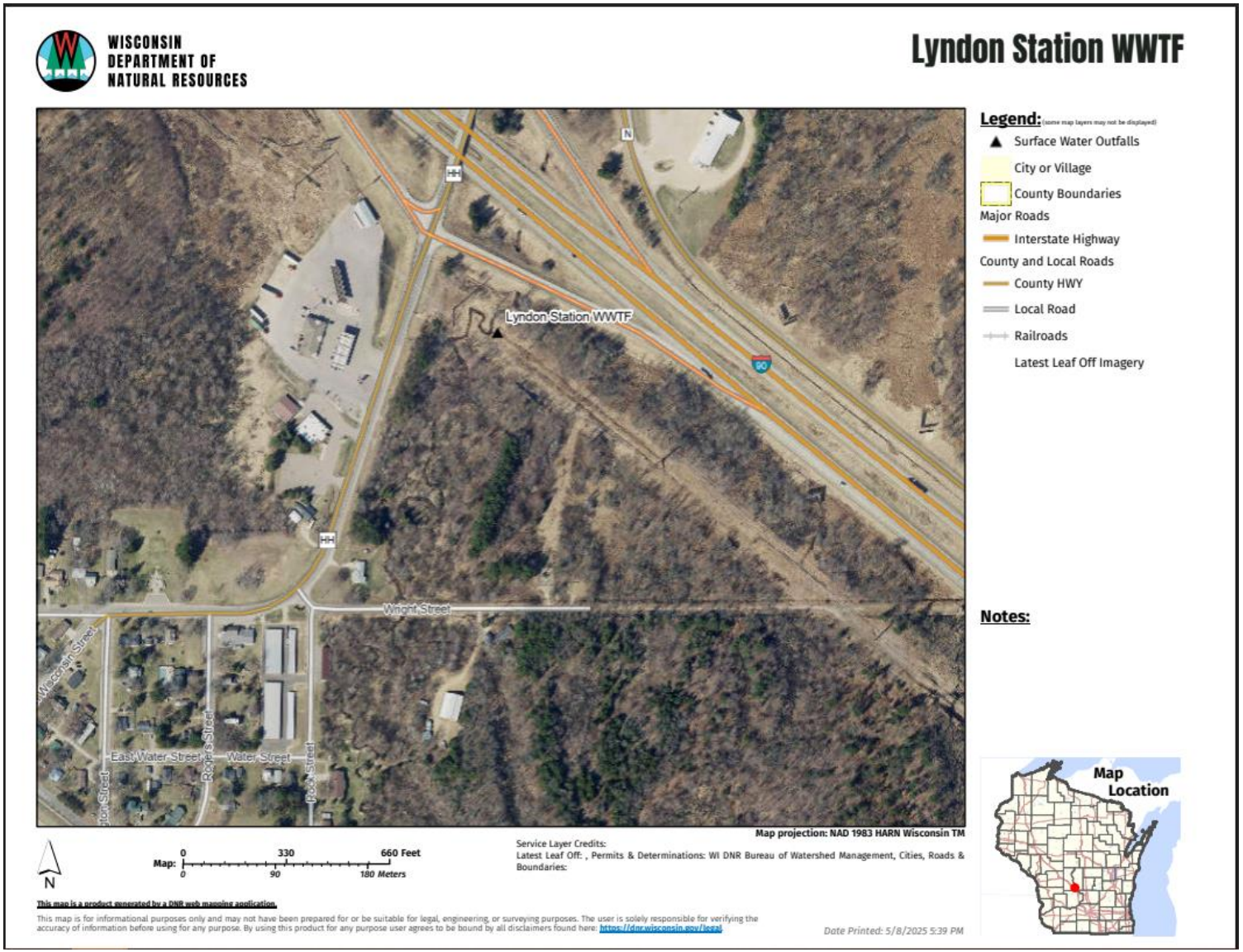
Parameter	Daily Maximum	Weekly Average	Monthly Average	Multiplication Factor (CV)	Assumed Monitoring Frequency (n)
Ammonia Nitrogen					
January - April	Variable	21 mg/L	8.7 mg/L		
May - October	Variable	**21 mg/L**	12 mg/L		
November - December	Variable	34 mg/L	15 mg/L		

Temperature limits for receiving waters with unidirectional flow

(calculation using default ambient temperature data)

						Temp Dates	Flow Dates
Facility:	Lyndon Station Wastewater Treatment Facility		**7-Q10:**	0.76	cfs		
Outfall(s):	003		**Dilution:**	25%		**Start:** 01/02/23	08/01/20
Date Prepared:	05/09/2025		**f:**	0		**End:** 12/30/23	03/31/25
Design Flow (Qe):	0.063	MGD	**Stream type:**	Cold water community			
Storm Sewer Dist.		ft	**Qs:Qe ratio:**	1.9	:1		
			Calculation Needed?	**YES**			

Month	Water Quality Criteria			Receiving Water Flow Rate (Qs)	Representative Highest Effluent Flow Rate (Qe)		f	Representative Highest Monthly Effluent Temperature		Calculated Effluent Limit	
	Ta (default)	Sub-Lethal WQC	Acute WQC		7-day Rolling Average (Qesl)	Daily Maximum Flow Rate (Qea)		Weekly Average	Daily Maximum	Weekly Average Effluent Limitation	Daily Maximum Effluent Limitation
	(°F)	(°F)	(°F)	(cfs)	(MGD)	(MGD)		(°F)	(°F)	(°F)	(°F)
JAN	35	47	68	0.19	0.080	0.071	0	47	49	65	120
FEB	36	47	68	0.19	0.088	0.078	0	43	44	62	119
MAR	39	51	69	0.19	0.140	0.076	0	43	43	62	118
APR	47	57	70	0.19	0.111	0.094	0	47	48	68	100
MAY	56	63	72	0.19	0.091	0.129	0	52	54	72	87
JUN	62	67	72	0.19	0.116	0.107	0	58	60	72	84
JUL	64	67	73	0.19	0.078	0.163	0	64	64	72	80
AUG	63	65	73	0.19	0.071	0.122	0	66	67	68	83
SEP	57	60	72	0.19	0.061	0.093	0	67	67	**66**	92
OCT	49	53	70	0.19	0.059	0.502	0	64	64	**61**	75
NOV	41	48	69	0.19	0.061	0.097	0	55	55	62	104
DEC	37	47	69	0.19	0.078	0.079	0	50	50	63	119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Legend:
Surface Water Outfalls
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County Boundaries
Major Roads
Interstate Highway
County and Local Roads
County HWY
Local Road
Railroads
Latest Leaf Off Imagery
Notes:
Map Location
Map projection: NAD 1983 HARN Wisconsin TM
Map: 0 330 660 Feet
0 90 180 Meters
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